

ITEM: 7

SUBJECT: History, Lithology, and Groundwater Conditions in the Tulare Lake Basin – *An Information Report*

BOARD ACTION: *This is an information item only. No Board action will be taken.*

BACKGROUND: The Tulare Lake Basin occupies the southern third of the San Joaquin Valley. It is a closed basin, without groundwater or surface water outflows. The San Joaquin Valley is a structural trough formed by granitic and metamorphic rocks of the west-tilting Sierran block on the east, and marine sediments of the coast ranges on the west. Sediments shed into the valley from these sources have affected the quality of both surface and groundwater. Eastside waters generally have low total dissolved solids (TDS), reflecting their origin in the Sierra. Westside waters generally have high TDS. The central portion of the basin is filled with clay-rich sediments deposited in Tulare Lake. Reducing conditions exist within these sediments allowing the formation of soluble forms of arsenic and other metals. Groundwater may have high TDS.

Predevelopment (pre-1915), groundwater was recharged by infiltration from rivers, and both groundwater and surface water flowed from the valley foothills toward Tulare Lake at the center of the basin. During wet years, Tulare Lake, once the largest fresh water lake west of the Great Lakes, spilled north joining the San Joaquin River and flowed north to the delta.

Diversions and storage of surface waters, and development of groundwater resources, lead to rapidly declining groundwater levels on the east side of the basin, decreasing groundwater levels and land subsidence on the west side of the basin, and the disappearance of Tulare Lake.

The State Water Project and the Central Valley Project brought in surface water from outside of the basin. While eastside groundwater levels recovered to some extent, and land subsidence essentially stopped, the groundwater and surface water flow patterns changed, and the use of imported water brought challenges.

The Tulare Lake basin is home to approximately 1.9 million people, contains approximately 3.2 million acres of irrigated cropland, 600 dairies, 95 food processors, and some of the oldest and largest oilfields in the country.

Water quality within the Tulare Lake basin is affected by its source area, chemical interactions with the aquifer sediments, and human activities. Staff will provide a summary of the historical setting, lithology of the sediments deposited in the basin, and report on current groundwater conditions.

Mgmt. Review _____
Legal Review _____

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